Department of Computer Science
COMSATS University Islamabad, Lahore

Smart Care:
ADVANCED MONITORING AND PREDICTIVE ANALYTICS FOR ELDERLY CARE

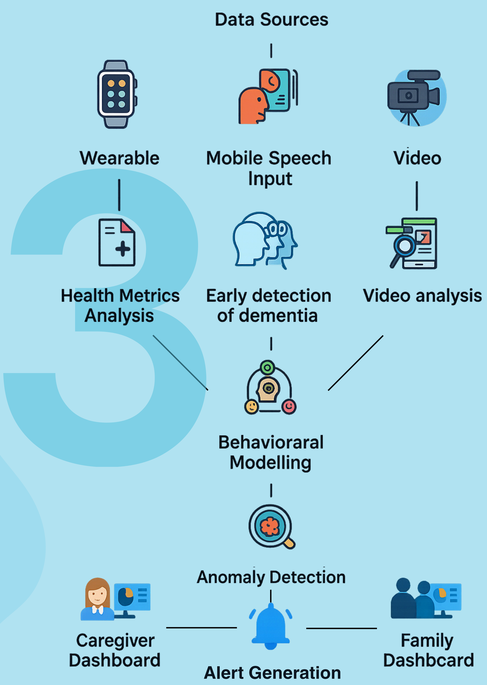
1 PROBLEM STATEMENT

Current elderly care systems lack personalized, real-time support, relying on rigid routines and manual check-ins that are error-prone and inefficient in emergencies. Wearable devices, often uncomfortable for the elderly, further reduce effectiveness. This project proposes an integrated monitoring solution using video surveillance, wearables, and speech sensors, powered by personalized data analytics and machine learning to deliver tailored, real-time insights—enhancing both patient care and caregiver efficiency.

2 PROPOSED SOLUTION

- Personalized Care
- Real-Time Monitoring & Alerts
- Behavioral Analysis
- Non-Intrusive Approach
- Dementia-Focused Care

3 SYSTEM ARCHITECHTURE



4 INTERFACES

5 RESULTS

83%
Fall Detection Model:
Random Forest

86%
Dementia Detection (Speech-based):
XGBoost

85+%
Patient Recognition & Activity:
FaceNet for face recognition and Linear SVM for classification.

TEAM MEMBERS

- Laiba Rafiq FA21-BCS-051
- Khunsha Tahir FA21-BCS-099
- Zahra Baig FA21-BCS-063

SUPERVISOR

Imran Raza

TOOLS AND TECHNOLOGY

React Native · Node js · PostgreSql · Pytorch · Fast Api